

# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN HARVESTERS.

Specification forming part of Letters Patent No. 27,617, dated March 27, 1860.

*To all whom it may concern:*

Be it known that I, GEORGE E. CHENOWETH, of Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Harvesters; and I do hereby declare the following to be a correct description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a top view or plan of my improvements, and Fig. 2 is a bottom view of a part of the cutter-bar and guards.

The same letter marks the same part in both the figures.

A marks the main frame; B, the axle-tree; C, the wheels; D, the outer arm of axle-tree; E, the end of the inner arm of the axle-tree; F, cross-piece of the main frame; G, the pivoted arm; H, trunnioned piece attached to lugs of arm G; I, hinge piece of coupling-bar; J, braces; K, coupling-bar; L, the shoe; M, the finger-bar; N, the guards; O, nut on end of finger-bar; P, chain-brace connecting shoe to end of axle; Q, chain-brace connecting coupling-bar to main frame; R, spring supporting driver's seat; a, lugs of arm G; b, trunnions of piece H; c, hinges of braces J; d, lip of guard; e, raising and lowering rod running through bar M.

The nature of my invention consists in new modes of constructing and connecting the finger-bar and guard-fingers, and of attaching and bracing the folding bar to the frame, with other details of construction hereinafter set forth.

To enable others to construct and use my invention, I will proceed to describe its construction and operation.

My improvements relate to a two wheel machine in which the cam is used as a driving power; but they may be adapted to other kinds of machines by obvious modifications that will at once suggest themselves to a skillful mechanic.

The side pieces, A, of the main frame are attached to the axle-tree B, and have free motion upon it. They receive between them the cam from which the motion of the cutters is derived, but which is not necessary to be represented here. The pieces A are joined at their rear extremities by the cross-piece F, to which is pivoted arm G, so as to be capable of lateral movement for folding the cutting apparatus to the outside of the wheel, when braces J J

are detached. This arm has two lugs, a, which receive the trunnions b of piece H, which rotates on them. The trunnion-piece H receives the hinge-piece I of coupling-bar K. The trunnions of piece H project on either side beyond the lugs of arm G, and are embraced by the braces J J, which hold the arm G firmly in place, and prevent its lateral vibration when the machine is in operation. These braces are hinged at c to the frame A, and can, when required, be detached from the trunnions of H, so as to allow free vibration to arm G in either direction, for the purpose of folding up the cutting apparatus, as before stated. The coupling-arm K is supported by chain Q, which connects it to the main frame. At its inner end it carries the shoe L, which is supported by a chain, P, from the end of the axle E. These chains, while they effectually support the parts to which they are attached, do not at all interfere with the folding of the bar to the outside of the wheel when braces J J are detached.

The finger-bar M is cylindrical and hollow, being made of wrought-iron pipe, and upon it are slipped the cast sockets or shanks of the guards N, the sockets tending greatly to increase the strength of the inclosed pipe. These sockets are united by a lip-and-recess connection, d, Fig. 2, which facilitates the placing of the guards exactly in line as the sockets are put on the bar. They are held tightly and securely upon the bar M by means of the nut o on its end. The lip-and-recess arrangement it will be observed, serves here an entirely different purpose from that which it fulfills in bars that are not cylindrical, for without it it would be difficult to keep the guards exactly in line when their sockets or shanks are placed upon the round bar.

Through the hollow of the bar M may be passed a rod, e, to be connected with a suitable device for raising and lowering the bar, and to be operated in any convenient manner. This arrangement of the rod protects it completely on all sides from access of dirt or obstructing matter, and relieves it from friction on the ground.

By making the finger-bar of wrought-iron pipe I combine economy, lightness, and strength, the last quality being still further increased by the support given to the bar by the cast cylindrical sockets of the guards N. The superior lightness of the bar diminishes the side-draft, facilitates folding, and lessens the friction on

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the ground. The cylindrical form also facilitates the passage of the bar over the ground, as a bar of such a form can touch a plane only in a single line, instead of exposing a large rubbing-surface to friction with the ground, as in a flat or oval bar. It also renders the bar much less liable to become clogged with lodged grass in mowing, any grass that may lodge upon it more readily slipping off than from the broad upper surface of a flat or oval bar.

I am aware that a finger-bar has been made by uniting the shanks of the guard-fingers and interposed sections of wood by long bolts running longitudinally through the bar, the shanks having mortises, and the sections tenons, to fit them, or vice versa; but this construction is complex and expensive, and has neither the characteristic feature nor advantage of my mode of construction. The shanks do not pass over and embrace the finger-bar in the sense in which that term is usually employed. They form the bar by being mortised to the interposed sections and then bolted together, and the bolts might run in an oblique direction and be tenfold in number without altering their function, which is simply to unite the fingers. One of the essential features of my invention, on the contrary, consists in the passing of the entire "finger-bar," strictly so called, through the hollow shanks of the guard-fingers. The complex bar just described, therefore, I distinctly disclaim.

I am aware also that a hollow bar of irregular form has been made, into and through which the shanks of the guard-fingers have been passed transversely, by means of holes drilled for that purpose, and secured by nuts on the rear side; but such a bar has not the strength resulting from the support given to my bar by the cylindrical sockets which embrace it; and it differs entirely from mine in the mode of attachment of the fingers.

I am not aware that a solid or hollow "finger-bar," properly so called, composed of a pipe or rod, has ever before been run through the hollow shanks of the guard-fingers which surround and strengthen the bar, such shanks being conformed in their interior configuration to the external shape of the bar on which they are placed. I disclaim distinctly the union of the shanks of the fingers by two or more long bolts. It is plain that the bar may be made of any other than the cylindrical shape and yet be hollow, and, whether hollow or solid, may receive the shanks of the fingers properly hollowed out to fit upon it. By this mode of construction the drilling of holes and employment of bolts are entirely dispensed with. When the cylindrical bar is used the guards may readily be adjusted by turning their points up or down, their cylindrical sockets freely turning upon the finger-bar when the nut O is loosened or removed.

When in operation the parts of the machine will occupy the positions shown in Fig. 1, the braces J holding the pivoted arm G in a line coincident with the line of draft, and the chains

P and Q supporting the coupling-bar and shoe, as shown; but when it is desired to fold the machine for transportation when not at work, the braces J are released from the trunnions b, and the arm G swings round, so as to allow the bar M to be folded against the outside of the wheel with the guards downward and the platform upward, without any necessity for disconnecting the platform or detaching the chain braces P Q. To combine this facility of folding the bar to the outside of the wheel with the advantage of attaching the heel of the bar at the central line of the machine is the object of the vibrating arm G and its connections.

It is obvious that by detaching the chain braces P Q the bar may be folded over upon the main frame, while the braces J remain attached to the trunnion-piece; but such a mode of folding I do not propose to employ.

I attach the driver's seat to the S-shaped spring R, which is fastened to the axle-tree B, the object being to prevent the weight of the driver from operating as a counterpoise to the rear part of the machine, which is already sufficiently light to work well.

It is clear that any plan which allows the heel of the finger-bar to have such lateral motion that its position can be changed from the central line of the machine to a line coincident, or nearly so, with the outside of the inner wheel will effect the object which I have in view in the use of the vibrating arm G and its connections, and fall fairly within the principle of that construction, which I believe I am the first to suggest. I desire, therefore, not to limit myself to the precise construction described for that purpose, but claim the right to use any other equivalent arrangement that will produce the desired effect by changing laterally the position of the heel of the finger-bar in its relation to the main frame, essentially as stated.

Having thus fully described my improvements, what I claim, and desire to secure by Letters Patent, is—

1. The laterally-adjustable arm G, pivoted to the frame, as described, for the purpose of changing the position of the inner end of the finger-bar laterally in relation to the main frame, to facilitate the folding of the bar to the outside of the wheel, as set forth.

2. The combination of the trunnion-piece H and hinge-piece I with the arm G, pivoted as specified, for the purpose described.

3. The adjustable side braces, J, hinged to the frame, and operating substantially in the manner described.

4. The finger-bar constructed of a tube or rod, in combination with the shanks or sockets of the fingers secured thereon, substantially in the manner described.

The above specification signed and witnessed this 31st day of January, A. D. 1860.

GEO. E. CHENOWETH.

Witnesses:

EDM. F. BROWN,  
FRED. FICKEY, Jr.